

CONFIDENTIAL

*Rocket Leaflet*

PROGRESS REPORT

FOR

NOVEMBER 1955

ON

4-INCH ROCKET

DOC <u>67</u>	REV DATE <u>29 MAY 1980</u>	BY <u>018373</u>
ORIG COMP <u>56</u>	CPI <u>52</u>	TYPE <u>03</u>
ORIG CLASS <u>M</u>	PAGES <u>2</u>	REV CLASS <u>C</u>
JUST <u>22</u>	NEXT REV <u>2010</u>	AUTH: HH 10-2

ORIGINAL CL BY 235977  
☐ DECL ☒ REVW ON 2010  
EXT BYND 6 YRS BY SAME  
REASON 3 & 31

1210-E-1

December 19, 1955

CONFIDENTIAL

Progress for the month of November primarily concerned studies of the causes of poor ignition on previous flights. A change in design was made to conform to the planning of a two range model.

A series of static tests were made on the 1,000 yard model with increased amounts of black powder in the igniter bag. Although the amount used should have been satisfactory, the motors chuffed badly at 35 deg. F. For this reason, the Kn value was increased in two additional motors. These units were designed with three tubes, each containing an 8" powder grain and a 0.413" nozzle, resulting in a Kn value of 166. This model ignited and performed satisfactorily at 35 deg. F.

Using the successful static test design, three models were made each having a simulated payload, both as to weight and size. Two of the units flew approximately 1,200 feet but were unstable, with the resultant poor flight path. Studies of the recovered units and moving pictures of their flights indicated poor stability due to insufficient rotation. Determination of the longitudinal and transverse moments of inertia and calculations based on those moments, indicated a need for increased cant angle and a more favorable center of gravity.

Three new models were fabricated, incorporating the indicated changes. The design revision included a shortening of the rocket body to improve the center of gravity and increasing the cant angle to 20 degrees for increased spin. Unfortunately, the heads of these rockets failed, due to weakening caused by prior use.

#### Future Plans

As soon as new Formica head blocks are received, motors with the above design will be static tested and if successful, made up into flight models.

The thrust gage will be installed and tested at the static test area.

Static tests will be made on new materials developed in the laboratory and from commercial sources.

#### Financial Statement

Total Amount of Contract (Phases 1 and 2)

Obligations for November, 1955

Total Obligations to November 30, 1955

Balance of Contract

Expiration Date - February 1, 1956



50X1

*Tagged  
1/31/56  
me.*

CONFIDENTIAL